WE CLAIM

1. A system for directing gas towards a specimen, said apparatus comprising:

means for directing a beam of charged particles towards the specimen; and

a gas conduit providing gas to an area of incidence of said beam of charged particles onto said specimen; whereas the gas conduit comprising:

an intermediate portion having a first end for receiving the inert gas and a substantially sealed second end:

whereas the intermediate portion has an first and second apertures that are positioned such as to define a space through which the beam of charged particles can propagate; and whereas the intermediate portion is shaped such as to allow a first portion of the inert gas to exit the second aperture and to allow a second portion of the gas to propagate towards the second end and to be returned through the second aperture.

- 2. The system according to claim 1, wherein the first portion and the second portion of the gas exit the second aperture at substantially opposite directions.
- 3. The system of claim 1 wherein the first portion and the second portion of gas form a symmetrical gas distribution pattern in relation to an optical axis of the beam of charged particles.
- 4. The system according to claim 1, wherein the gas conduit generates a substantially rotational symmetrical magnetic field at the vicinity of the apertures.
- 5. The system according to claim 1 whereas the intermediate portion is U-shaped.

- 6. The system of claim 1 wherein the first and second system are positioned at substantially a middle of the intermediate portion.
- 7. The system of claim 1 wherein the intermediate portion is saddle shaped.
- 8. The system of claim 1 wherein the second aperture is larger than the first aperture.
- 9. The system of claim 1 where the first and second apertures have substantially symmetrical shapes.
- 10. The system of claim 1 wherein the intermediate portion is shaped such as to prevent substantial beam deflection due to charging of the intermediate portion from interactions with charged particles returning from the specimen.
- 11. The system of claim 1 wherein the intermediate portion has a substantially symmetrical portion that defines the apertures.
- 12. The system of claim 11 wherein the substantial symmetrical portion is sized and positioned such as to interact with most of the charged particles returning from the specimen.
- 13. The system of claim 11 wherein the substantially symmetrical portion is at least 1mm long.
- 14. The system of claim 1 wherein the first portion is directed towards the substrate at a first angle that is slightly smaller than ninety degrees and whereas the second portion is directed towards the substrate at a second angle that is slightly larger than ninety degrees.
- 15. The system of claim 12 wherein the first angle ranges between 60-89 degrees and wherein the second angle ranges between 91 and 120 degrees.
- 16. An apparatus for directing gas towards a specimen, said apparatus comprising:

a first gas conduit portion oriented at a first positive angle in relation to an imaginary axis that is perpendicular to a central gas conduit portion;

a second gas conduit portion oriented at a second negative angle in relation to the imaginary axis;

a central gas conduit portion, coupled to the first and second gas conduit portions, the central gas conduit portion defines a first aperture and a second aperture; whereas the central gas conduit portion is shaped such as to allow gas to exit via the second aperture at multiple directions; whereas the first and second apertures define a passage; and whereas the central gas conduit is shaped such as to induce a substantially rotationally symmetrical magnetic field at a vicinity of the space.

- 17. The apparatus of claim 16 wherein the passage is shaped such as to allow the passage of a beam of charged particle beam.
- 18. The apparatus of claim 17 wherein the second gas conduit receives gas from the central gas conduit portion and returns at least a portion of said received gas to the central gas conduit portion.
- 19. The apparatus of claim 17 wherein the second gas conduit receives gas from the means for providing gas.
- 20. The apparatus of claim 17 wherein the first and second apertures define a space through which a beam of charged particles can propagate.
- 21. The apparatus according to claim 17, wherein the gas exits the second aperture at substantially opposite directions.
- 22. The apparatus of claim 17 wherein the gas exits the second aperture to form a symmetrical gas distribution pattern.
- 23. The apparatus according to claim 17, wherein the central gas conduit portion generates a substantially

rotational symmetrical magnetic field at the vicinity of the apertures.

- 24. The apparatus according to claim 17 whereas the first, second and central gas conduit portions form a U.
- 25. The apparatus of claim 17 wherein the second aperture is larger than the first aperture.
- 26. The apparatus of claim 17 where the first and second apertures have substantially symmetrical shapes.
- 27. A method of directing gas towards a specimen, the method comprises the stages of:

receiving gas at a gas conduit that defines at least one aperture shaped such as to allow gas to exit and a beam of charged particle to propagate;

directing the gas towards the specimen at a positive direction and at a negative direction in relation to an imaginary axis that is perpendicular to an aperture out of the at least one apertures; and

maintaining a substantially symmetrical magnetic filed while receiving charged particles from the specimen.

- 28. The method of claim 27 further comprising a stage of interacting at least a portion of the gas with a beam of charged particles directed toward the specimen.
- 29. The method of claim 28 wherein the interaction results in milling the specimen.
- 30. The method of claim 28 wherein the interaction results in imaging the specimen.
- 31. The method of claim 28 whereas the charged particles are electrons.
- 32. The method of claim 28 whereas the charged particles are ions.
- 33. The method of claim 28 wherein the stage of directing the gas partially overlaps with a stage of

directing a beam of charged particles towards the specimen.

- 34. The method of claim 28 wherein the stage of directing the gas does not overlaps with a stage of directing a beam of charged particles towards the specimen.
- 35. The method of claim 28 wherein the stage of directing comprises: directing received gas towards a second aperture; whereas a first portion of the gas exits via the second aperture while another portion propagates through a portion of the gas conduit to be retuned to the second aperture.